

Appendix I

Socioeconomics

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Socioeconomics

This appendix summarizes additional background information and data that comprise the baseline social and economic conditions for the socioeconomic study area. The baseline socioeconomic assessment is designed to establish the social and economic trends that can be used to measure potential impacts of alternative management plans for the Monument. In this socioeconomic assessment, the following variables are evaluated:

- economic assessment: population, employment, and personal income;
- social assessment: land use patterns, community resources; and
- environmental justice: poverty rates and minority populations.

In each assessment, a baseline scenario described under Alternative I (the No-Action Alternative) is used to evaluate changes to these variables caused by proposed management actions for the Monument.

Study Area Description

As defined in the AMS, the socioeconomic study area (the study area) covers Montezuma and Dolores Counties. From a human geography perspective, these counties comprise the Montelores Human Resource Unit (HRU) within the Four Corners Social Resource Unit. Cultural descriptors, such as settlement patterns, networks, work routines, support services, recreational activities, and geographic features, define HRUs (Kent 1999). These descriptors are analyzed for Montezuma and Dolores Counties in Productive Harmony Analysis: Interpretive Framework for Social and Economic Assessment of Southwest Colorado Communities and San Juan Public Lands (Preston 2005). The AMS includes extensive excerpts from this report. Additionally, analysis by the Sonoran Institute for the BLM on population, employment, earnings, and personal income trends of Montezuma and Dolores Counties, which was completed in 2003, also describes the social and economic conditions of the study area (Sonoran Institute 2003). For this baseline assessment, data from these references are updated and augmented with data from the Colorado State Demography Office (CSDO), the U.S. Census Bureau, and the U.S. Department of Commerce Bureau of Economic Analysis.

The socioeconomic study area for the Monument includes some distinctive geographic features that have shaped local communities for over 1,000 years. As shown in Figures 2-1, 2-2, 2-3, major defining features for the study area include the Dolores River, as well as the surrounding mesas, canyons, and mountains.

Montezuma County is located in the southwestern corner of Colorado and contains approximately 1.3 million acres. Less than one-third of the land area in Montezuma County is privately owned. Land ownership is as follows: 30 percent private land, 33 percent Ute Mountain Ute land, and 37 percent state and Federal lands (the largest part of which is managed by the BLM). Commercial, governmental, and social activities are centered in the City of Cortez. Cortez serves as the county seat for Montezuma County, and has a population of about 8,600 (CSDO 2006). The towns of Dolores [population 900] and Mancos [population 1,200] provide some limited tourist and resident services. Dolores is the closest town to the Anasazi Heritage Center (AHC), which is the primary visitor center for the Monument.

Population

Population trends for Montezuma County are shown in Figure I-1. The population of Montezuma County dropped between 1985 and 1990, as construction on McPhee Reservoir and the carbon-dioxide fields located inside the Monument were completed. Since that time, the population of Montezuma County has grown steadily, and the Colorado State Demography Office forecasts that county population will increase at a rate greater than one percent per year for the next 20 years (CSDO 2006). Future population growth in Montezuma County is expected to be faster than that of the U.S. or of Colorado, due to the “attractiveness of cities of the Western Slope to small businesses and telecommuters wanting to get away from large metropolitan areas” (Preston 2005). Preston notes that ‘relative remoteness’ and ‘reserves of natural beauty and cultural diversity’, have proven to be assets that have driven a large share of the migration to Southwest Colorado since 1970” (Preston 2005). The State Demography Office, Preston, and the AMS generally refer to this trend as “amenity migration”.

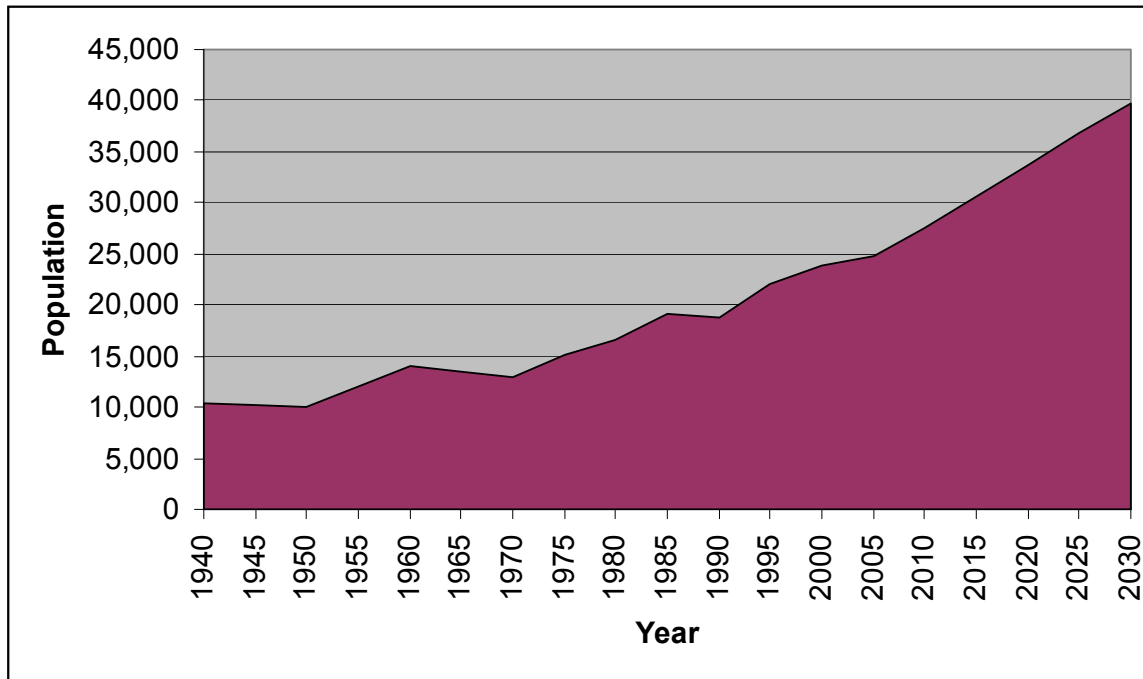


Figure I-1 Montezuma County Population

As the “Montelores” moniker suggests, Dolores County is often considered together with Montezuma County. However, Dolores County has some unique challenges and opportunities that are very different than those experienced in Montezuma County. Most of the residents of Dolores County rely on cities and towns outside the county for all but the most basic services, which creates close ties with neighboring Montezuma and San Miguel Counties. Dolores County contains 674,000 acres, with 42 percent private land and 58 percent State and Federal land (with Federal lands primarily managed by the USFS San Juan National Forest). Dolores County is split into two distinct physical and human geographic units. The eastern part of the County surrounding the Town of Rico (population 230) has a high mountain character with a hard-rock mining heritage. Recent development of Telluride resort has accelerated growth in Rico as a bedroom

community. These residents generally work and use services in San Miguel County and in Telluride.

The western part of Dolores County including, Dove Creek (population 680) and the areas adjacent to the Monument, were settled around dry-land farming. These agricultural roots remain strong, as Dolores County is the only county in the region to experience continued growth in agricultural employment and revenue. Recent domestic water and irrigation projects, however, are changing this pattern. The availability of rural domestic water has prompted an increase in residential development of 35-acre parcels. According to the AMS, the primary appeal of western Dolores County is its wide-open vistas.

With a county population base of less than 2,000 people, Dolores County's government struggles to maintain the physical infrastructure and services required by residents spread across its expansive and diverse jurisdiction. A recent Housing Needs Assessment for Dolores County characterizes the challenges faced by this small rural county (Dolores County 2007):

"Currently, economic development county-wide has been stymied by the low population, which does not provide enough critical mass to sustain goods and services in small communities. In addition, the wide geographic separation of the incorporated Towns of Dove Creek and Rico makes it difficult to provide services or economic development that could benefit both communities. It may be advisable to consider the problem from the perspective of a "regional economy".

Population trends for Dolores County are shown in Figure I-2. Historically, population trends have been greatly affected by mining activity, such as uranium mining and milling activities near the western part of Dolores County. In the late 1970s, these projects shut down, which resulted in the most recent population decline. Given its small population and sensitivity to individual construction or mining projects, the population forecast for Dolores County, as developed by the Colorado Demography Office and plotted in Figure I-2, could be grossly inaccurate. However, as the county shifts from agriculture and resource development to amenity migration and tourism as an economic base, a smoother population trend may be more likely.

Jobs and Income

Jobs and average wages in Montezuma County for 2005 are shown in the Table I-1. The unemployment rate in Montezuma County in 2005 was 5.3 percent, just slightly higher than the State and the national unemployment rates of 5.0 and 5.1 percent, respectively (CEDS 2007).

Although agriculture jobs play an important part Montezuma County's culture and tradition, they make up only seven percent of all jobs and, due to the low wages, only two percent of total income. The fastest growing job sector in Montezuma County is services. However, due to low wages in this sector, one in three jobs in Montezuma County equal only one in four dollars of income. In 2005, the ten top employers in Montezuma County were: Cortez School District RK-1 (568 employees), Ute Mountain Ute Casino (513), Wal-Mart (411), Ute Mountain Tribe (391), Southwest Memorial Hospital (309), Weminuche Construction (226) City of Cortez (211), Montezuma County (181), Nielsons Skanska, Inc. [Construction] (226), and Western Excelsior Corp [Manufacturing] (137) (CEDS 2006). The Ute Mountain Ute Tribe and its Enterprises (Weeminuche Construction) support over 1,100 jobs in the region (CEDS 2007).

Figure I-2 Dolores County Population

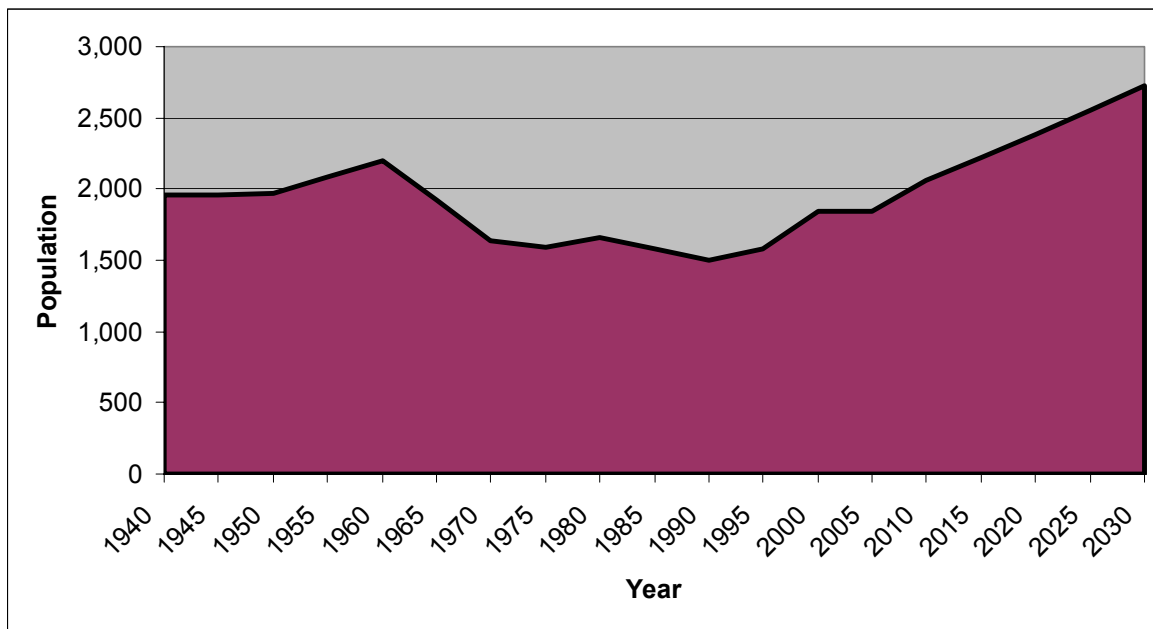


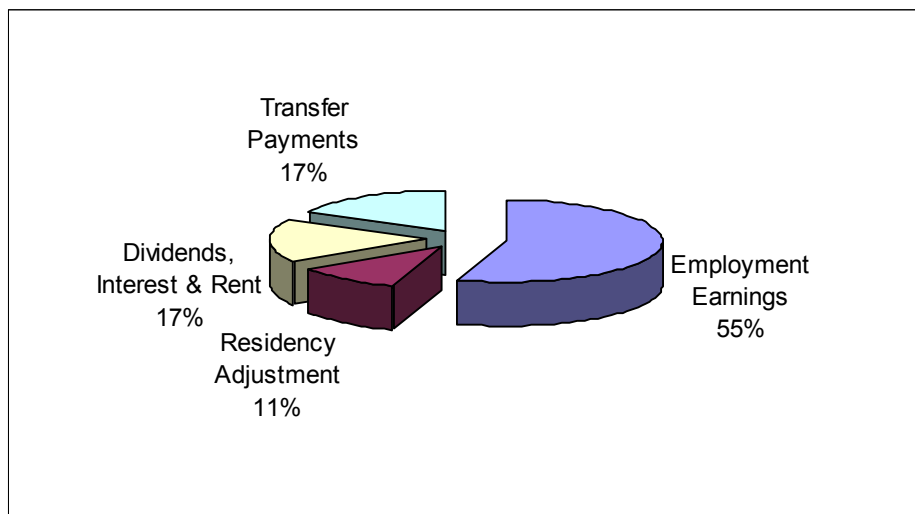
Table I-1 Jobs and Income Summary for Montezuma County 2005

Category	Jobs	Percent of Total Jobs	Average Wage	Percent of Total Income
Agriculture	839	7	\$8,500	2
Mining and Utilities	217	2	\$69,000	4
Construction	1,116	9	\$43,400	13
Manufacturing	493	4	\$29,400	4
Transportation and Warehousing	239	2	\$49,000	3
Trade	1,900	15	\$24,800	12
Finance, Insurance, and Real Estate	613	5	\$31,400	5
Services	4,051	31	\$29,100	25
Government	3,205	25	\$37,600	32
Total/Average	12,673			

(Source: CEDS 2006)

Total personal income is the sum of all income accruing to residents from sources such as employment income, transfer payments, dividends, interest and rent, and residency adjustments (for commuters). The components of total personal income for Montezuma County in 2005 are shown in Figure I-3.

Figure I-3 Total Personal Income in Montezuma County 2005 (\$687,312,000)



The largest share of total personal income in Montezuma County is primarily from employment income related to government and service jobs. According to the AMS, the fastest growing income source is from retirees. Payments to retirees amounted to about 14 percent of total personal income in Montezuma County in 2005 (CEDS 2006). In 2004, per capita personal income in Montezuma County was just under \$25,000 (CEDS 2006).

Jobs and wages in Dolores County for 2005 are shown in Table I-2. The labor force unemployment rate in Dolores County in 2005 was 6.9 percent, which was considerably higher than the State and the national rates of close to five percent (CEDS 2007). The small numbers of jobs in the manufacturing and transportation sectors have likely skewed the average wage results reported in Table I-5. Nevertheless, the results for the agriculture sector are even more dramatic for Dolores County than they are for Montezuma County. Almost one-third of all jobs in Dolores County are related to agriculture, yet they amount to only five percent of total income due to the drastically low average wages.

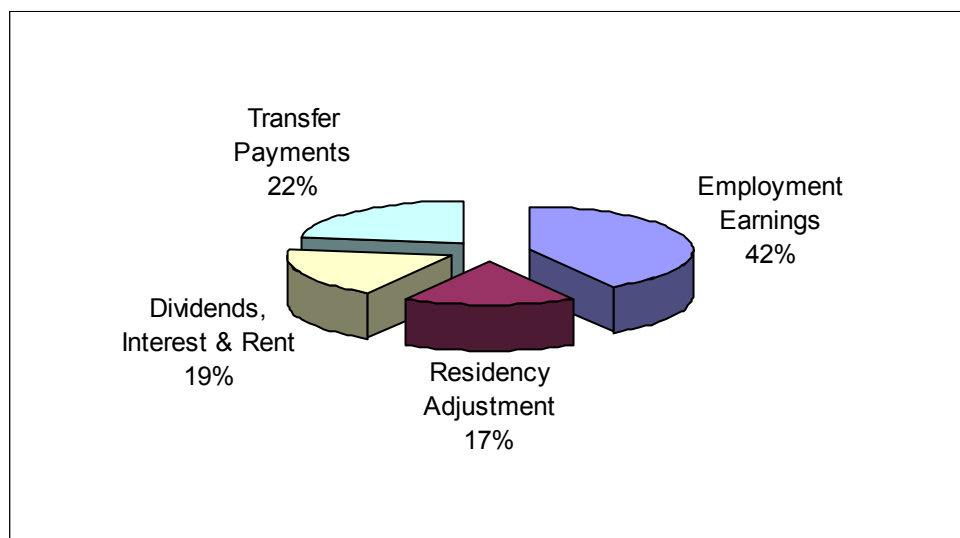
Table I-2 Jobs and Income Summary for Dolores County 2005				
Category	Jobs	Percent of Total Jobs	Average Wage	Percent of Total Income
Agriculture	228	27	\$4,100	5
Mining and Utilities	29	3	\$42,300	5
Construction	82	10	\$26,000	11
Manufacturing	5	1	\$68,200	2
Transportation and Warehousing	9	1	\$84,800	4
Trade	106	11	\$18,500	10
Finance, Insurance, and Real Estate	29	3	\$50,000	8
Services	168	20	\$26,600	24

Table I-2 Jobs and Income Summary for Dolores County 2005				
Category	Jobs	Percent of Total Jobs	Average Wage	Percent of Total Income
Government	202	24	\$29,000	31
Total/Average	858			

(Source: CEDS 2007)

Unlike for other counties in the region, agriculture is a significant and growing sector of employment and income in Dolores County. In 2005, the major employers in Dolores County were: Dolores County (69 employees), Dolores County School District (65), Dove Creek Superette [retail] (27), Dove Creek Implement [service retail] (14), Dolores County Health (13), Dunton Hot Springs [resort] (12), James Tree Farm [agriculture] (11), Midland Bean Company (9), Rico Country Store (8), and Adobe Milling (8) (CEDS 2006). Figure I-4 shows the composition of total personal income for Dolores County in 2005.

Figure I-4 Dolores County Total Personal Income 2005 (\$45,500,000)



The largest portion of total personal income in Dolores County primarily comes from employment income related to government, services, and agriculture. As it is in Montezuma County, the fastest growing source of income is from retirees. In 2005, payments to retirees accounted for almost 17 percent of total personal income in Dolores County. Per capita personal income (PCPI) in Dolores County was just under \$25,000 in 2005. This is well below the State (\$36,100) and national (\$33,050) PCPI for that year.

Economic development continues to be a top priority for the study area. Both Montezuma and Dolores Counties meet the economic distress criteria, which makes them eligible as Enterprise Zones (Colorado Statute 39-30 CRS). According to this statute, in order to be designated an Enterprise Zone, an area must have a population of less than 80,000 and must meet one of the following criteria:

- an unemployment rate at least 25% above the state average;

- a population growth rate at least 25% less than the state average; and/or.
- a per capita income (PCI) at least 75% less than of the state average.

Montezuma County meets the PCI criteria. Dolores County meets all three criteria. As a result, Montezuma County has received annual tax credits totaling over \$3.3 million since 1992. These tax credits have generated over \$180 million in investment and created 1,319 jobs. In Dolores County, Enterprise Zone tax credits have amounted to over \$207,000 since 1992, and have generated almost \$7.5 million in investment and 30 jobs (CEDs 2006).

Economic Assessment and Key Planning Issues

In order to quantify changes to the economy in the study area related to management actions, it is necessary to consider the base analysis of Montezuma County completed by the Colorado Division of Local Government – Demography Section, using Bureau of Economic Analysis and Labor Market Data (CEDs 2006). Base analysis identifies industries that are basic to the economy and that drive growth and change. Base industries bring outside dollars into the local economy. Base industries in Montezuma County include agriculture, mining, tourism, and government. Local resident services (those industries not included in the base) re-circulate the dollars within the local economy. Base industries are the most important part of an economy, and management actions that affect these industries will have impacts throughout the economy. In addition to the base analysis, the RIMS II economic model was implemented in order to estimate multipliers that estimate the indirect jobs and income generated by base industries. For example, the RIMS II multipliers estimated that every mining job supports 2.6 additional jobs and 1.1 times its income in the local economy. Table I-3 shows the percentage of base jobs in Montezuma County, and the percentage of jobs and income generated by agriculture, mining, and tourism industries. In addition, Table J-3 shows the RIMS II multipliers for jobs and income for each of these industries.

Table I-3 Montezuma County Economic Base Analysis for 2005			
Parameter	Jobs	Income (millions)	RIMS II Multiplier
Base Jobs (percentage of total jobs)	8,500 (67%)		-
Base Income (percentage total employment)		\$250 (66%)	-
Agriculture jobs (percentage of base)	1,020 (12%)		0.6
Agriculture income (percentage of base)		\$12.5 (5%)	1.1
Mining Jobs (percentage of base)	85 (1%)		2.6
Mining income (percentage of base)		\$7.5 (3%)	1.1
Tourism jobs (percentage of base)	1,450 (17%)		0.4
Tourism income (percentage of base)		\$28 (11%)	0.6

(Source: CEDs 2006)

The values in Table I-7 are used to quantify economic impacts triggered by management actions. They indicate the relative importance of each of the key planning sectors on the greater economy. For instance, even though mining jobs make up only 1 percent of base employment, as high wage jobs in a key sector they support 2.6 additional jobs in the economy. Comparatively, tourism jobs make up 17 percent of base jobs; however, as

low-wage jobs, they only make up 11 percent of base income, and support an additional 0.4 jobs.

The base analysis for Dolores County is not included in the impact analysis because potential impacts from management actions in the Monument are likely to be dominated by other influences. For example, tourism jobs and income in Dolores County are primarily found in eastern Dolores County and are related to activities for mountain communities and Telluride resort. Similarly, mining jobs and income in Dolores County are linked to hard-rock mining and fluid-minerals development in Utah. Therefore, management activities on the Monument cannot be reliably measured using the base analysis for Dolores County. Furthermore, Dolores County's economy is less than one-tenth the size of Montezuma County's (based on total personal income), so combining these economies is not feasible. Therefore, direct impacts to Dolores County's economy could not be quantified with this analysis. However, the general size and direction (positive/negative) of the impacts to Montezuma County are relevant for Dolores County.

In the economic impact analysis, management actions for the key planning issues (fluid minerals, rangeland resources, and recreation/transportation) are linked to one of the base industries (mining, agriculture, tourism) in order to estimate potential impacts to employment and income in Montezuma County. These individual impacts are summed to estimate changes in total jobs, total personal income, and population from the baseline scenario/No-Action Alternative. These results are summarized in Table I-4, and discussed in detail below.

Table I-4 Summary of Economic Impacts				
Percentage Change from Alternative I (No-Action Alternative)				
Measure	Alternative II	Alternative III	Alternative IV	Alternative V
Total Jobs	(-) 2%-4%	No change	(+) 5%-10%	(+) 4%-8%
Total Personal Income	(-) 0.15%-0.3%	No change	(+) 1%-2%	No change
Population	No change	No change	No change	No change

Fluid Minerals Development

McElmo Dome, one of the world's largest deposits of nearly pure carbon dioxide (CO₂), is located, in part, on Monument lands (K-M 2007). Estimated ultimate recovery of CO₂ from McElmo Dome is 15.3 trillion cubic feet, of which, approximately 4.4 trillion cubic feet have been produced to date (BLM 2005a). Currently, Kinder Morgan CO₂ operates 44 wells that produce CO₂ from McElmo Dome at a rate of about 1 billion cubic feet per day. At current production rates, McElmo Dome will be able to produce CO₂ for 50 years or longer (see RFD). The CO₂ produced by Kinder Morgan is transported in a pipeline 650 miles to Denver City, Texas, from where it is distributed for advanced oil-recovery operations (BLM 2005a).

In January 2007, Kinder Morgan CO₂ announced a \$200 million expansion project to increase CO₂ production and transport pipeline capacity to 1.35 billion cubic feet per day. This project includes development of a new 54,000-acre CO₂ source in Dolores County with 6 CO₂ wells, 1 salt-water disposal well, and a compression facility (Cortez Journal 2007). This project also includes eight new CO₂ production wells at the McElmo Dome

Unit. Seven of these new wells will be located inside the Monument. Two new pump stations and 10 miles of new pipe will be added to the Cortez-to-Denver City pipeline.

The economic impacts associated with this project include 150 to 200 new construction jobs, five new permanent jobs, and an increase in county property tax revenues (Cortez Journal 2007). Currently, CO₂ operations in Montezuma County generate 40 percent of property tax revenues. After the expansion project is complete, this could increase to 50 percent.

Relative to CO₂, oil and gas production has a relatively small economic impact on the study area. About 90 percent of the fluid-minerals production in Montezuma County is from CO₂ production (Cortez Journal 2006). The relatively small oil and gas reserves inside the study area are mostly played out, with only three percent of estimated ultimate recovery remaining (BLM 2005a and Table 3-26). Notably, most of the land area in the Monument was leased prior to the Proclamation and is managed under existing lease agreements.

Jobs and income from fluid-minerals development are important to the study area because they increase employment diversity and pay some of the highest wages, as shown in Tables I-3 and I-4. In addition, tax revenues related to fluid-minerals production and property are critical to Montezuma and Dolores Counties. Figures I-5 and I-6 illustrate the share of county tax revenues generated by fluid-minerals properties (Montezuma County 2006, Dolores County 2006). Note that taxes from CO₂

development are included in the commercial, industrial, and oil and gas revenue source categories listed in the figures. Figure I-7 shows revenue distribution for Montezuma and Dolores Counties in 2005.

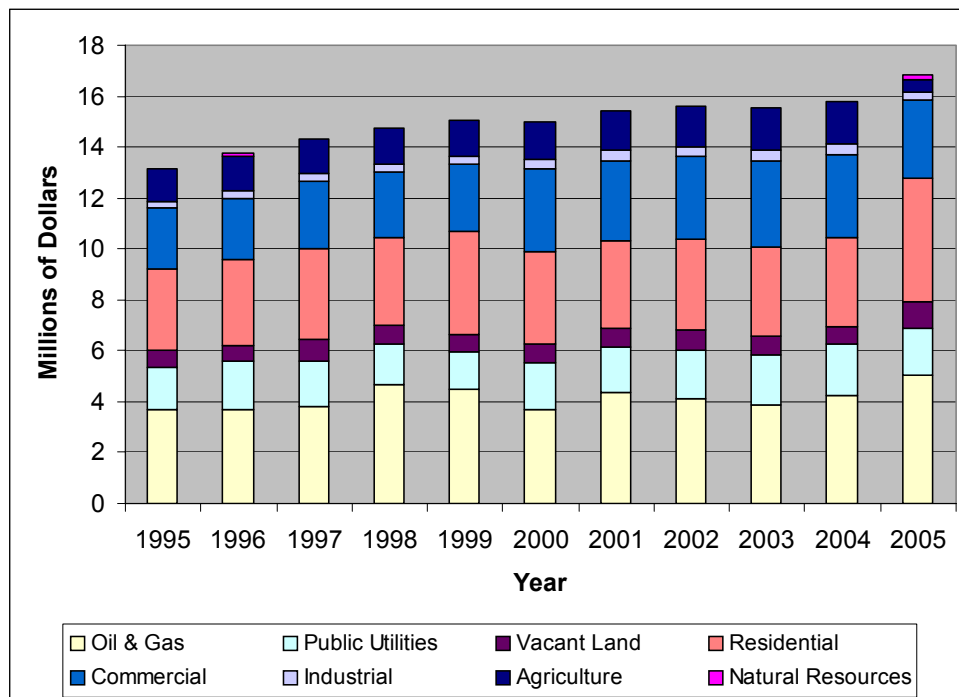


Figure I-5 Montezuma County Tax Revenue

Figure I-6 Dolores County Tax Revenue

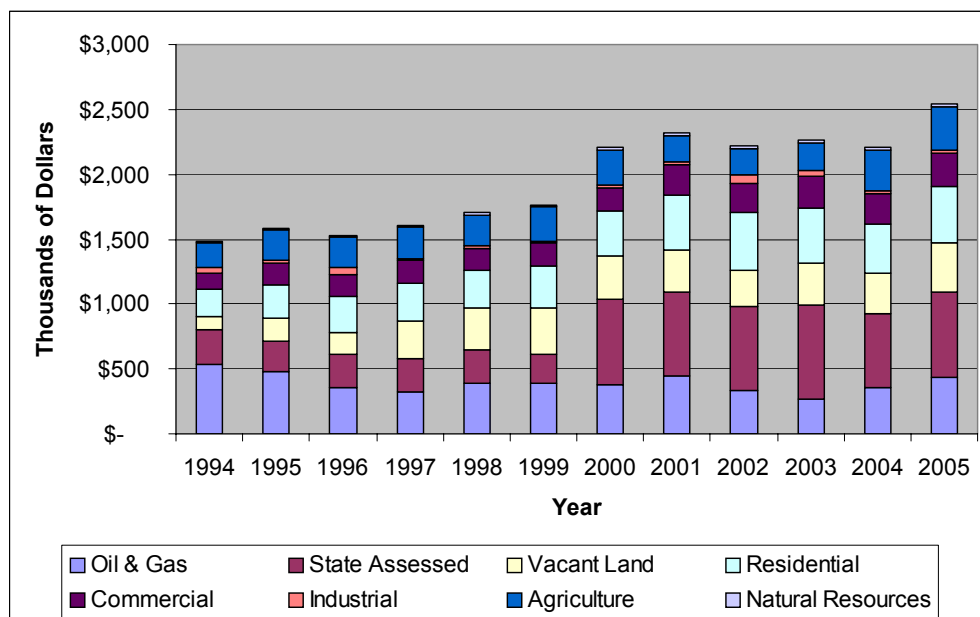
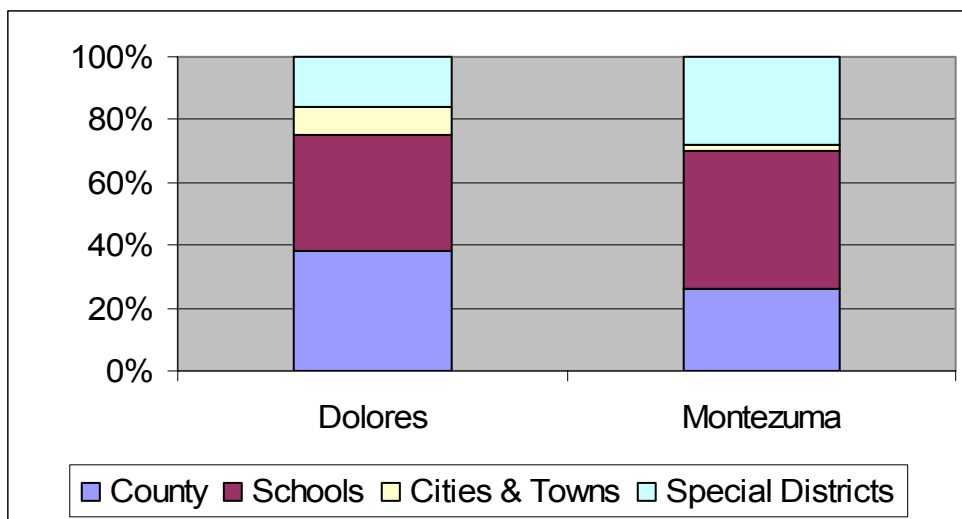


Figure I-7 County Revenue Distribution 2005



Estimating Economic Impacts for Fluid Mineral Management Actions

Estimates for economic impacts for fluid-minerals management actions are directly related to the production of oil, gas, and carbon dioxide on the Monument. It is important to note that most fluid-minerals production on the Monument would be completed under leases negotiated before the Proclamation. Management actions resulting from the planning process would not affect these leases or production levels. Therefore, fluid-minerals management actions would only have a small impact on fluid-minerals production levels. Furthermore, oil and gas resources in the Monument are more than 90 percent depleted. Unless new resources are discovered, oil and gas production will

continue to decline for the next ten years (BLM 2005a). Unlike oil and gas production, carbon-dioxide production is limited by pipeline capacity, rather than by resource capacity. Carbon-dioxide wells have a longer lifetime than oil and gas wells, and new wells are drilled in order to maintain production levels and to keep the pipeline full. There is no motivation to significantly increase carbon-dioxide production beyond pipeline capacity, even though there is more than enough resource base to expand. Given this resource production scenario, estimating economic impacts for fluid-minerals development focuses on carbon-dioxide production. If management actions affect carbon-dioxide production, then there would be economic impacts related to county revenues, as well as to mining jobs and, in turn, to income. Unless fluid-minerals management actions create the opportunity to locate and develop a major new oil and gas field, these impacts are insignificant relative to carbon-dioxide production. In the analysis, potential changes to carbon-dioxide production levels from the baseline scenario are estimated. Most carbon-dioxide production is on existing leases; therefore, large changes are unlikely. Additionally, county tax revenues from fluid-minerals development are a function of production levels and price. Although carbon-dioxide production levels have remained steady, prices for carbon dioxide have been increasing, and, as a result, so have county tax revenues. Although, fluid-minerals development is an important factor in the study area's economy, the fact that most development is conducted on existing leases and the fact that commodity prices have a large influence, the economic impacts associated with fluid-minerals management actions are likely to be relatively minor or negligible.

Rangeland Resource Management

Employment and income for agriculture in the study area are illustrated in Tables I-3 and I-4. The agriculture sector supplied over 1,000 jobs in the study area in 2005, making up about 8 percent of total employment. However, due to the low average wages in the agricultural sector (about \$8,500 in Montezuma County, and less than \$5,000 in Dolores County), agricultural jobs contributed only 2 percent of total income. The economic forecast for the study area predicts that the percentage of income will drop to less than one percent during the next 20 years (CSDO 2006).

Farm incomes have been trending negative for the past 20 years in both counties. Figures I-8 and I-9 show farm income for Montezuma and Dolores Counties, respectively. In Montezuma County, net farm income (including ranching and farming operations) has been near zero for the past 20 years (CSDO 2006). Dolores County has maintained positive net income. However, recent drought years have been negative.

Taking a closer look at farm income in the study area, crops and livestock make up about half of total income, with government payments and other farm income (such as custom tilling and other services) comprising the other half. Farm income has indirect benefits to the study area in that it adds to the total productivity of the local economy. A recent input-output model analysis of Montezuma County estimated that the agriculture sector has a multiplier of 1.20 (The Colorado Trust 2005). Based on this multiplier estimate, every dollar in farm income generates an additional 20 cents in the Montezuma County economy. This is probably due to the fact that production expenses for seed and feed tend to stay in the local economy. In 1997, the U.S. Bureau of Economic Analysis, Farm Data Report estimated \$59 million in total production expenses for Montezuma County (USDA 2000).

Figure I-8 Montezuma County Farm Income

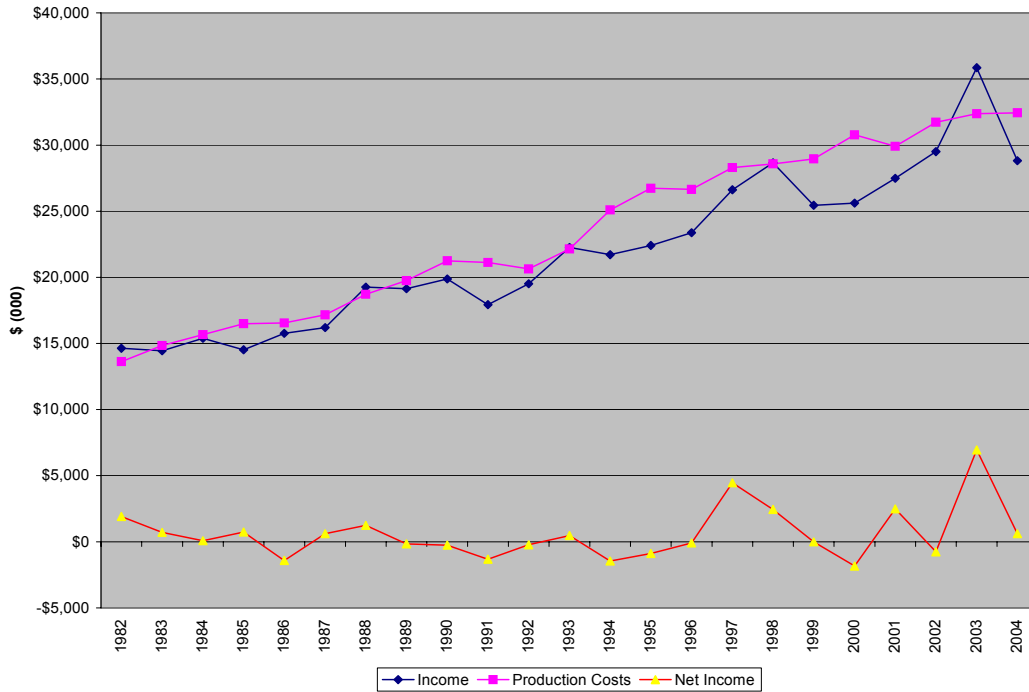
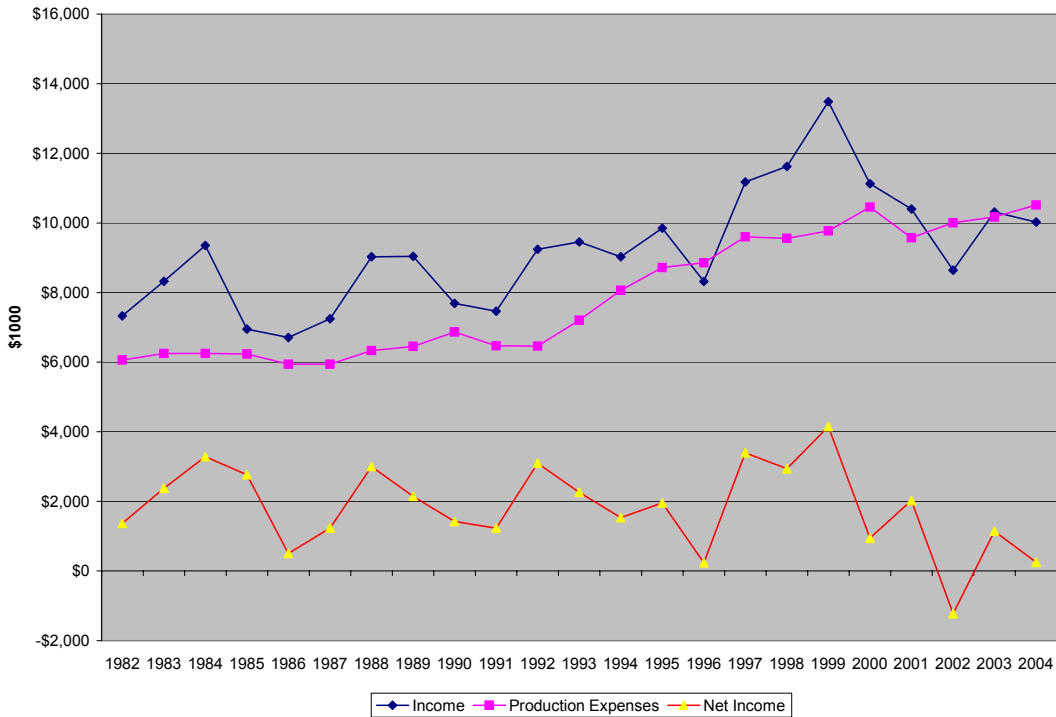


Figure I-9 Dolores County Farm Income



Estimating Economic Impacts of Rangeland Management Actions

Management actions for Alternative II and V would reduce active AUMs by about 25 percent, bringing grazing activity closer to pasture carrying capacity and recent actual use. Reducing AUMs by up to 25 percent would reduce agricultural income in Montezuma County by about one-half of one percent. This is estimated by considering the options available to ranch operators when faced with fewer AUMs. They could either sell the livestock that would use those AUMs (2,055 AUMs support about 430 cattle) or they could pasture the livestock elsewhere (and likely increase their production costs). In the first case, the 430 cattle represent about 2 percent of the 18,000 cattle and calves reported in Dolores and Montezuma Counties in 2005 (CAS 2005). Comparing livestock receipts to cattle inventories for 2001 and 2003, each cattle inventory unit is equivalent to about \$500 in livestock receipts for that year. This does not imply that each cattle unit is sold in that year; it merely demonstrates the relationship between livestock receipts and cattle inventory. Using this relationship, a two-percent reduction in cattle inventory would reduce livestock receipts by about \$220,000, or one to two percent. Total agricultural receipts (livestock plus crops) for Montezuma and Dolores Counties amounted to almost \$50 million in 2003, with livestock receipts making up about one-quarter of that amount. Therefore, a two-percent reduction in livestock receipts would reduce total agricultural income by about 0.5 percent. In the case of higher production costs, a recent analysis completed for Park County, Wyoming on the impacts of reducing AUMs on ranch income and viability found that each AUM amounted to \$185 of livestock production (UWYO 2006). Therefore a reduction of 2,055 AUMs would reduce livestock production income by about \$380,000. Using the same figure for total livestock and agricultural receipts, this would amount to a reduction in total agricultural receipts of about 0.5 percent.

Recreation and Transportation Management

Tourism is one of the study area's most important economic sectors. A study by the University of Colorado found that tourism contributes to local economies as follows:

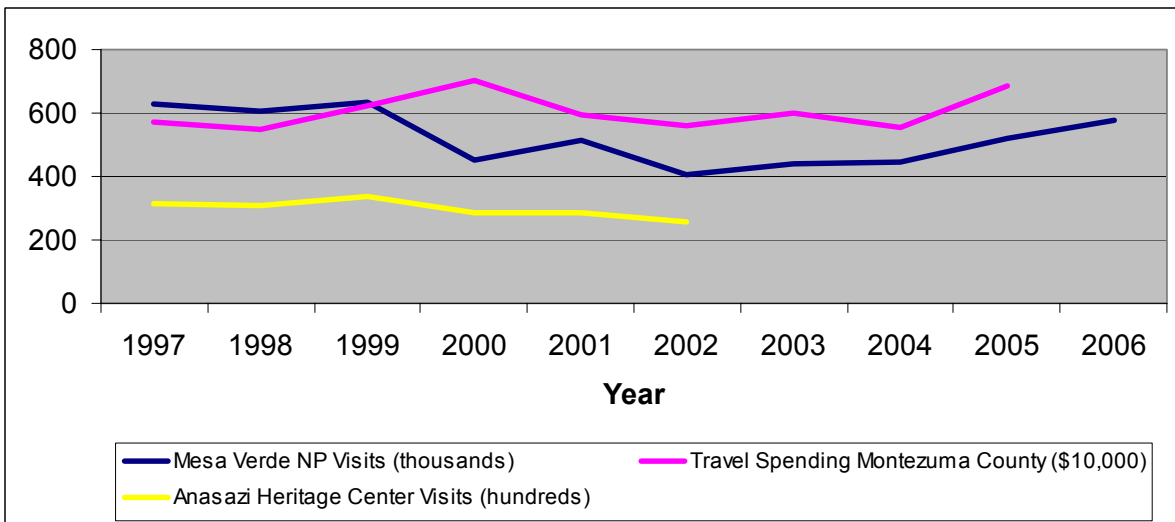
- The nature of the tourism industry allows businesses to operate in remote areas. These areas often lack a diversified economy, and the jobs that such an economy creates.
- Economically, tourism provides employment and wages that help to decrease unemployment and increase the circulation of money through the community.
- Tourism means money for capital investment and local and State tax revenues (CEDS 2002)

In the study area, tourism is a key component of economic development. It is one of the four local economic objectives measured for Enterprise Zone progress for Montezuma and Dolores Counties. One dimension of these economic development efforts is to transform the City of Cortez into a tourist destination. Currently, many tourists visiting area attractions drive through Cortez or Mancos for one night on their way to, or from, Mesa Verde National Park. These same visitors may then move on to Durango or Telluride, staying in one of the local resorts or hotels for up to a week. Local chambers of commerce and other economic development agencies are leveraging Enterprise Zone funding in order to increase promotion of local attractions and events in Cortez to create a destination platform.

Recent studies of tourism employment in the study area found that 20 percent of total employment in Montezuma County and 11 percent in Dolores County are related to tourism (CEDS 2002). In Montezuma County, 12 percent of total employment is related to public lands (Colorado State Parks 2004). Tourism also has important indirect economic impacts in the study area. One study found that tourism has a higher economic multiplier than manufacturing, agriculture or mining (The Colorado Trust 2005). In Dolores County, it is estimated that \$1,705,000 in tourism employment wages support \$853,000 of wages in related industries. The 37 tourism jobs support 15 other jobs (The Colorado Trust 2005). In Montezuma County, it is estimated that \$26,397,000 in tourism employment wages support \$13,199,000 of wages in related industries. The 1,431 tourism jobs support 572 jobs. Furthermore, tourism generates tax income through sales and lodging taxes. In 2000, travel-related sources generated six percent of State and local taxes in Dolores County, and 38 percent of these taxes in Montezuma County (Colorado State Parks 2004).

Tourism in the study area has been linked to visits to the largest regional attraction: Mesa Verde National Park. Figure I-10 Montezuma County Tourism Trends compares visits to Mesa Verde National Park to travel spending in Montezuma County, as well as visits to the Anasazi Heritage Center (Dean Runyan 2005, Colorado State Parks 2007). The chart in Figure I-10 shows that all three trend lines show the same general pattern over the 10-year period. This is probably due to national economic trends, as well as to local weather patterns (such as drought and fires that caused reductions in visits and travel spending from 2002 to 2004). Tourism spending in Dolores County has generally not been linked to Mesa Verde National Park, due to the distance to the Park entrance. Overall, Dolores County has been regarded as a transit point between Grand Circle destinations, such as Arches and Canyonlands National Parks and Mesa Verde National Park or, on the east side of Dolores County, between southern population centers and Telluride.

Figure I-10 Montezuma County Tourism Trends



Estimating Economic Impacts of Recreation Management Actions

Looking at recent tourism trends, as shown in Figure I-9, tourism jobs are directly correlated to Mesa Verde visits. Between 1999 and 2000, visits to Mesa Verde National Park and Hovenweep National Monument dropped by one third. During that same period, tourism jobs in Montezuma County dropped by one third (NPS 2007, Dean Runyan 2005). Similarly, between 2004 and 2005, visitation to national parks increased by 10 percent. Tourism jobs in Montezuma County also increased by 10 percent. Therefore, this relationship between visits to nearby National Parks and tourism jobs is used to estimate economic impacts of management actions. For the analysis, it is assumed that minor changes to recreational use of the Monument would result in a 5 to 10 percent change in tourist visits, and moderate changes to recreational use of the Monument would have 10 to 25 percent change in tourist visits.

Social Impact Assessment and Key Study Areas

From a social perspective, the study area is being affected by larger social trends that are impacting local settlement patterns and community groups in the following ways:

- Newcomers are moving in to the area in order to take advantage of the unique natural resources, quality of life, and other amenities that the region offers ("amenity migration"). Many of these newcomers are retirees or second homeowners that bring along their pensions and other retirement benefits. This "new" money affects the local economy (primarily in the construction and real estate sectors) as it is spent on new homes, goods, and services. As non-labor income, it also serves to diversify and stabilize total personal income in the area (CEDS 2002).
- Traditional ranching and agricultural lands are being converted to low-density rural residential subdivisions. In Dolores County, the average farm size has decreased from 1,266 acres in 1992, to 734 acres in 2002, which is a 42 percent reduction. Montezuma County experienced a 22 percent reduction in average farm size during the same time period, from 1,262 acres to 988 acres (The Colorado Trust 2005).
- Rising land value in the area is a double-edged sword. On one hand, rising land prices make it difficult for existing agricultural operations to expand, and for a new generation of farmers and ranchers to get established. On the other hand, those who have land equity have seen it grow, providing them with forbearance and credit to ride out rough times, as well as the opportunity to sell off pieces of land, when the need for cash dictates. However, land values tend to have less impact on a family's choice to sell their ranch than do retirement needs or a lack of interested heirs (Preston 2005).

Together, these trends will shape future settlement patterns and community resources. Potential social impacts related to each of the key planning issues are discussed below.

Social Assessment and Cultural Resource Management

Twenty-five Native American tribes and Pueblos claim cultural and/or landscape affiliation with the Monument (SWCA 2002). These claims are based on ancestral links or traditional and ceremonial use of Monument resources. Some of the traditional uses noted by the Ute Mountain Ute Tribe include collecting minerals for white paint, harvesting willows for Sun Dance, and harvesting juniper branches for cleansing ceremonies. Monument resource management preferences for these groups were

collected by the BLM at Intertribal Meetings held in November 2003 and March 2004 (BLM 2003 and 2004). These preferences can be generalized as:

- increase public education about Native American history and traditional resource use in the Monument;
- leave archaeological sites undisturbed, and allow them to return to the Earth, rather than develop them;
- prevent vandalism and looting of archaeological sites (Monument policy regarding human remains should strive to leave them untouched and to rebury them in same location as soon as possible);
- ensure access to resources for traditional use and to sites for religious/ceremonial purposes (locations of sacred sites should not be revealed to the public);
- increase partnerships/collaborations on Monument resource decisions; and
- consider the concerns of tribes in designing and conducting research on the Monument.

In addition to these general preferences, the Ute Mountain Ute Tribe requested continued access to lands inside the Monument designated for hunting under the Brunot Treaty (see Section 3.1.7 Recreationally or Economically Important Game Species).

Social Assessment and Fluid Minerals Management

Montezuma and Dolores Counties are highly dependent upon tax revenues generated by CO₂ production from McElmo Dome to fund schools and other county services. The quality and availability of social services and schools have been evaluated periodically by Operation Healthy Communities (The Colorado Trust 2005). Using an index system that compiles survey and focus group data from community members, The Colorado Trust strives to measure the overall health and quality of life for the five counties in Southwest Colorado. The indicators that The Colorado Trust has tracked include community health care (measured by the number of emergency room patients without insurance), the number of children enrolled in child health plans, as well as many others. The Colorado Trust also tracks services to seniors, economic health and diversity, art and culture, energy and conservation, growth, and the environment. Results from the most recent index show that Montezuma and Dolores Counties are consistently below regional and State averages in almost all categories, especially those related to social services. These low scores are generally due to lack of services, rather than to poor service quality. If CO₂ production from McElmo Dome were reduced, county social service programs would probably be cut due to a lack of funding, which would further degrade the level of social services in the study area.

In addition to county tax payments, fluid-minerals producers also pay lease fees, severance taxes, and other fees that are returned, in part, to the county where the minerals were removed in order to compensate for mineral development impacts. Colorado has a convoluted severance tax distribution system that distributes Federal and State severance tax and lease revenues through four or more different “pots” of money. In 2004, Montezuma County received over \$166,000 from the Local Government Mineral Impact fund (DOLA 2005). This money was distributed to local municipalities in Montezuma County on the basis of employee residence reports. The Town of Dolores used this money to help fund street and sewer system improvements.

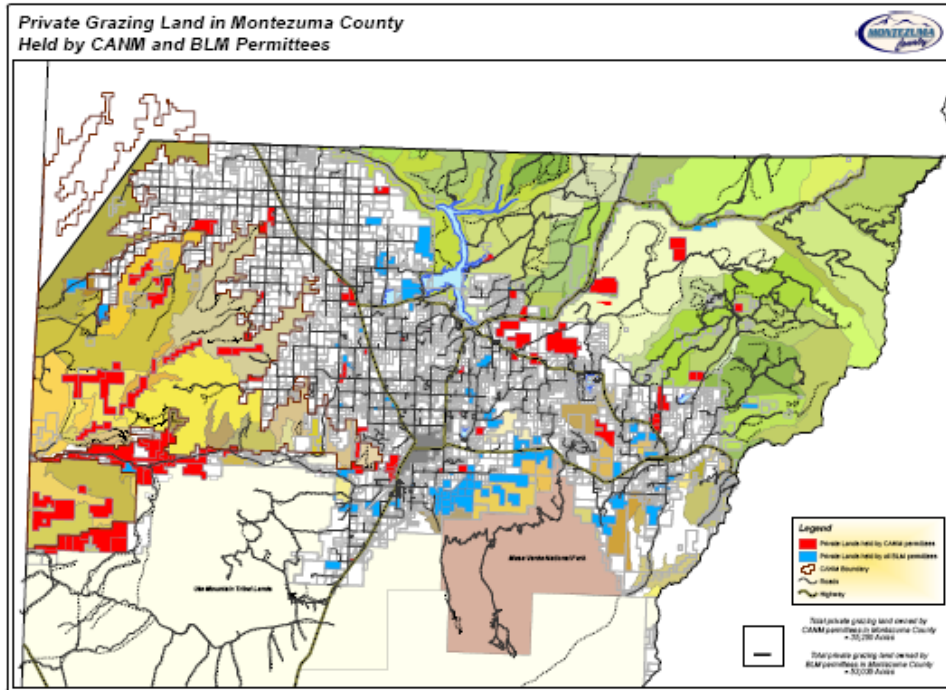
Social Assessment and Rangeland Resource Management

Recent analysis by the BLM notes that livestock grazing is an important aspect of the local custom, culture, and of the economy in Montezuma County (BLM 2005b). Colorado Agricultural Statistics from 2004 show that cattle and calve numbers have dropped dramatically from 2001 to 2004, due to the worst recorded drought in Colorado history. During that time, Montezuma County reported a 30 percent decline in cattle and calf inventories, and Dolores County reported a 50 percent decline (CAS 2005). These drastic herd reductions represented both economic and stewardship considerations (i.e. ranchers cut back their herds, recognizing the inability for the land to support their operations). Reports for 2006 show an increase in cattle operations in both counties, with 34,000 cattle and calves in Montezuma and Dolores Counties (6,000 in Dolores County and 28,000 in Montezuma County) as drought conditions have eased (CAS 2005).

Private mid-elevation “transitional pasture,” combined with public land grazing permits, plays a key role in the ongoing viability of many ranches in the study area. Grazing, as well as grain and hay production, is for many ranches part of a rotation that involves summer grazing on the National Forest land and winter/spring grazing on lower elevation BLM land (Preston, 2005). There are currently about 8,300 Animal Unit Months (AUMs) permitted in the Monument, although only about 85 percent of these AUMs are considered active.

About one-third of the land base in Montezuma and Dolores Counties (638,000 acres) is in private ownership (BLM 2005d). The map included in Figure I-11 illustrates the portion of private ranchland in Montezuma County owned by ranchers with Monument grazing permits (BLM 2005d). These ranchers own 35,250 acres of private land in Montezuma (shown in red on the map in Figure I-11). There are currently about 20 ranch operations that hold grazing permits in the Monument (BLM 2004d). If permittees for other BLM lands in the region are included, 10 percent of all private land in Montezuma County is owned by BLM grazing permittees. This pattern of land ownership has been relatively stable for more than 75 years.

Agriculture represents a number of non-quantifiable economic and social benefits in the study area (Preston 2005). The agricultural landscape, shaped in part by ranching, is a key aesthetic asset that supports base employment and earnings from tourism and amenity migration. The wildlife habitat, particularly winter range, is a key resource in supporting the substantial hunting industry. Maintaining a mix of agricultural and residential land use patterns is a critical factor in the quality life in the study area. Recent trends in land subdivision for Montezuma County shown in Table I-5.

Figure I-11 Private Land in Montezuma County Owned by BLM Grazing Permittees.**Table I-5 Montezuma County Agriculture Land Subdivision Trends**

	1950/60s	1970s	1980s	1990s	Total
Agricultural Parcels Subdivided	6	25	29	68	128
Acres Subdivided	402	3,672	2,171	12,781	19,026
Average Agricultural Parcel Size	67	147	75	188	149
Subdivision Lots Created	237	531	623	704	2,095
Average Subdivision Parcel Size	1.69	6.92	3.48	18.15	9.08

(Source: BLM 2005d)

Increased subdivision of agricultural land in Montezuma County was one factor that led the establishment of the Landowner Initiated Zoning (LIZ) system. One goal of LIZ is to “encourage cluster development and facilitate the establishment of zoning to protect neighborhoods that wish to remain agricultural.” The Montezuma County Comprehensive Land Use Plan emphasizes the public’s desire to sustain the rural character, as well as wildlife populations, in the county. The plan specifically states that “Declines in federal grazing, will result in the declines in ranching and agriculture, which will result in declines in privately maintained open space and wildlife” (BLM 2005b).

There are several factors that may affect the rate at which private agricultural lands are converted to other land uses, including economic viability, land ownership status, and

personal choice to continue traditional lifestyles. During 2001, ranch families were asked to identify key variables affecting the viability of ranching in southwestern Colorado (USDA 2000). These factors include:

- concern regarding increasing subdivision and sale of agricultural land;
- concern regarding potential changes in fees and stocking rates on Federal land;
- concern regarding residential subdivisions in agricultural areas, which generate conflicts with essential farm practices (e.g. nighttime farming, aerial spraying, etc);
- concern regarding high land prices, which enhance the opportunity (and the temptation) for people to get out of ranching;
- concern regarding the fact that once agricultural land is subdivided into residential parcels, it will never return to agricultural use; and
- concern regarding the fact that private grazing lands for lease are becoming increasingly scarce.

In January and February 2004, the BLM conducted interviews in order to discuss livestock grazing in the Monument (BLM 2004d). The overall response from participants was positive; however, ranchers felt that they lacked a comfortable communication process with the BLM. Based on these findings, one of the most important and productive mitigation strategies for preserving ranching in the study area would be a joint public/private collaborative stewardship path based on solid and practical range science and monitoring. If the BLM and ranchers can find the “productive harmony” between livestock grazing and ranch survival, the outcomes would likely be positive in all spheres, versus increasing polarization with energy channeled into resistance (Preston 2005). The foundation for this path has been created through the Range Stewardship Committee and Goal B of the Rangeland Resource alternatives for the Monument. In 2001, ranch families joined together with leadership from Montezuma County in order to form the Rangeland Stewardship Committee. The group’s mission is to “promote the health and viability of the ranching and farming community in Montezuma County, and the stewardship of the resources upon which the long-term viability of this community depends” (Durango Herald 2002).

Social Assessment and Recreation and Transportation Management

In 2002, Colorado State Parks developed a Statewide Comprehensive Outdoor Recreation Plan (SCORP). As part of this plan’s development process, data from the National Survey on Recreation and the Environment (NSRE), relevant to Colorado, was collected and indicated the following:

- more than 94 percent of Coloradans participate in outdoor recreation;
- more than 90 percent of Coloradans are trail users (the average Colorado family uses trails 78 times per year);
- at least 69 percent of Coloradans own at least one bicycle;
- OHV registration has increased 223 percent since 1995; and
- of the eight mountain states within the USFWS Mountain Region, Colorado attracts the most hunters and anglers.

Relevant trends uncovered by the NSRE found that the fastest growing recreation activities include walking and day hiking, wildlife viewing, bicycling, picnicking, and

visiting historic sites (The Abonmarche Group 2004). Moderate growth was reported in off-road driving, visiting archaeological sites, and in primitive camping.

The Monument Advisory Committee (Advisory Committee), which is made up of local residents and stakeholders, developed a list of recommendations for Monument management actions related to key issue areas, including recreation and transportation. The Advisory Committee found that transportation access in the Monument would be needed for the following uses: archaeology, fluid minerals, grazing, rescue operations, maintenance, hiking, wheeled vehicles, motorized vehicles, horseback, hunting, wood cutting, law enforcement, camping, native traditional/ceremonial, communications, pipelines, power lines, and livestock transportation. In addition, the Advisory Committee revealed some preferences regarding recreation and transportation management actions:

- **Recreation Objective 3:** Create opportunities for education and alliances that lead to interagency and community involvement in the stewardship of the Monument and its resources.
- **Recreation Objective 4:** Encourage opportunities for private enterprise in order to provide services for recreational activities, maintain a local presence and flavor, and contribute to the local economy.
- **Transportation Objective 3:** Avoid detrimental impacts to the resources by designating 6 to 10 access points in the Monument.
- **Transportation Objective 3.1:** Use existing fluid-minerals infrastructure (e.g., roads, abandoned well pads) that have been through the environmental compliance process as sites for visitor parking and associated infrastructure (e.g. picnic tables, toilets).
- **Transportation Objective 8:** Stop the proliferation of unauthorized cross-country travel by motorized and mechanized vehicles (BLM Advisory Committee 2004).

With respect to transportation management actions, a regional transportation plan was recently completed for the study area (Southwest 2030 Regional Transportation Plan 2004). The forecast for the major highways leading to primary Monument access points, particularly the segment of US Highway 160 south of Cortez, shows a volume-to-capacity ratio of 60 percent or higher by 2030. This indicates that this segment of highway could experience traffic flow problems. All other transportation routes feeding Monument access points are not expected to be at high capacity levels by 2030.

Estimating Social Impacts

The social impact analysis uses two variables: settlement patterns and community resources. Settlement patterns measure the rate at which land is converted from existing uses (such as agricultural) to a different land use (such as residential). This may impact the quality of life in the region, due to the fact that open space amenities are highly valued in the community (BLM 2005b). Community resources measure impacts to social services and to the organizations that support the rural lifestyle that defines communities in Montezuma and Dolores Counties. Social impacts are summarized in Table I-6, in terms of their relative size and direction (positive or negative), when compared to a baseline or No-Action scenario.

Under the No-Action Alternative, rising land values, amenity migration, and increased agricultural input costs will result in conversion of about one-third of existing private

agricultural land in the study area into residential or other land uses during the next 20 years. This was estimated from historical land conversion rates, shown in Table I-5, and from planning forecasts for the study area (CSDO 2006). Assuming that development rates keep accelerating at the same rate as for the past 20 years, and that land prices will continue to rise, then it is expected that about one third of existing private agricultural land in the study area will be developed during the planning period.

Community resources, especially county social services, would be maintained at present levels of availability and quality of service under the No-Action Alternative. With increased tax revenues from higher CO₂ production, county-funded social services would be able to keep up with increased demands associated with the population growth forecasted under the No-Action Alternative. A further consideration is the mix of social services demanded by a changing demographic. More than half of the population growth forecasted for the study area by 2010 will be 50 years or older (CSDO 2006). The consequences of this shift are already being felt in the local school districts. School enrollment is dropping, even though population is growing. Therefore, it is assumed that although the mix of county social services may change over the planning period, the overall quality and availability of these services will remain the same.

References

- The Abonmarche Group. 2004. McPhee Lake Marina Feasibility Study. September 2004. Available on the Internet: www.co.montezuma.co.us/documents/mcphee/final%20marina%20report.pdf. Accessed on November 5, 2006.
- Bureau of Land Management (BLM). 2003. Notes from Monument Intertribal Meeting held in Cortez, Colorado. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. November 3-5, 2003.
- BLM. 2004a. Initial Contact Effort, Monument Rangeland Interest Group. Whittekiend, J.C., Rangeland Consultant. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. February 14, 2004.
- BLM. 2004b. Notes from Monument Intertribal Meeting held at Pojoaque, New Mexico. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. March 4, 2004.
- BLM. 2004c. Monument Advisory Committee Recreation Final Report. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. May 2004.
- BLM. 2004d. Monument Advisory Committee Transportation Final Report. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. May 2004.
- BLM. 2005a. Reasonable, Foreseeable Development: Oil, Natural Gas, and Carbon Dioxide in Canyons of the Ancients National Monument. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. April.

Appendix I ***Canyons of the Ancients National Monument***
Draft Resource Management Plan/Draft Environmental Impact Statement

- BLM. 2005b. Analysis of the Management Situation, Canyon of the Ancients National Monument. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. August.
- BLM. 2005d. Canyons of the Ancients National Monument, Environmental Assessment. Livestock Grazing Permit Renewal for Yellow Jacket, Cahone Mesa, Goodman Gulch, Sand Canyon East, Sand Canyon West, Flodine Park and Hamilton Mesa Allotments. EA#: CO-SJPLC-03-099. U.S. Department of the Interior, Bureau of Land Management. Canyons of the Ancients National Monument. Dolores, Colorado. January.
- Center for Business and Economic Forecasting, Colorado Agricultural Statistics (CAS). 2005. Available on the Internet: <http://www.cbef-colorado.com/pubs/FCSUM902.PDF>. Accessed on February 20, 2007.
- Comprehensive Economic Development Strategy (CEDS). 2006. Region 9. CEDS Update 2006. Region 9 Economic Development District. Comprehensive Economic Development Strategy. 2006 Update for Montezuma and Dolores Counties. Available on the Internet: <http://www.scan.org>. Accessed on February 22, 2007.
- CEDS. 2002. Region 9 Tourism Report. Graves, D. Region 9 Economic Development District. Gaining Ground or Shaky Ground? A Detailed Look at Tourism Employment in the Southwest Colorado Travel Region. Final Report, December 2, 2002. Available on the Internet: <http://www.scan.org>. Accessed on November 5, 2005.
- CEDS. 2007. 2007 Region 9 Economic Development District. Available on the Internet: <http://www.scan.org>. Accessed on February 22, 2007.
- CEDS. 2007. Region 9 Enterprise Zone Update 2006. Region 9 Economic Development District. January 31. Available on the Internet: <http://www.scan.org>. Accessed on February 22, 2007.
- Colorado State Demography Office (CSDO). 2006. Economic Data by County. Available on the Internet: <http://www.dola.state.co.us/demog/>. Accessed on November 05, 2005 and February 20, 2007.
- Colorado Department of Local Affairs (DOLA). 2005. Letter from Michael Beasley, Executive Director, dated January 31, 2005. Subject: 2004 Direct Distribution of Federal Mineral Lease Funds.
- Colorado State Parks. 2004. Profile of Tourism and the Outdoors. A Report on the Proceedings of the Southwest Colorado Outdoor Recreation and Tourism Partnership Forum. July 2004. Available on the Internet: <http://parks.state.co.us/Trails/LandandWaterConservationFund/SCORPPlan/>. Accessed on February 22, 2007.
- Cortez Journal. 2006. Crane, J.R. Kinder Morgan proposes wells in Canyons. November 2, 2006. Available on the Internet: <http://cortezjournal.com>. Accessed on February 22, 2007.

- Cortez Journal. 2007. Crane, J.R. Kinder Morgan plans \$200M gas expansion. February 3, 2007. Available on the Internet: <http://cortezjournal.com>. Accessed on February 22, 2007.
- Dolores County. 2006. Dolores County Clerk. Abstract of Assessments. 1994-2006.
- Dolores County Commissioners and Region 9 Economic Development. 2007. Dolores County Housing Needs Assessment Final Report January 12. Available on the Internet: www.ricocolorado.org/gov/. Accessed on February 22, 2007.
- Durango Herald. 2002. Ranchers Squeezed over Public Lands. Matt, J. January 20, 2002. Available on the Internet: http://www.durangoherald.com/asp-bin/article_generation.asp?article_type=news&article_path=news/02/news020120_1.htm. Accessed on February 22, 2007.
- Kent, J.A. and K. Preister. 1999. Methods for the Development of Human Geographic Boundaries and their Use. June, 1999. Available on the Internet: <http://www.naturalborders.com/publications/index.html>. Accessed on November 5, 2006.
- Kinder Morgan CO₂, Inc. (K-M). 2007. Available on the Internet: About Us, http://www.kindermorgan.com/about_us/about_us_kmp_co2.cfm. Accessed on February 22, 2007.
- Montezuma County. 2006. Montezuma County Clerk. Abstract of Assessments 1994-2006.
- National Park Service (NPS). 2007. History of Total Annual Visits for Hovenweep National Monument and Mesa Verde National Park. U.S. Department of the Interior. Washington, D.C. Available on the Internet: <http://www2.nature.nps.gov/NPstats/dspAnnualVisits.cfm>. Accessed on April 7, 2007.
- The Colorado Trust. 2005. Operation Healthy Communities Pathways to Healthier Communities 2005. Available on the Internet: www.scan.org. Accessed on November 5, 2006.
- Preston, M. 2005. Office of Community Services, Fort Lewis College. Productive Harmony Analysis: Interpretive Framework for Social and Economic Assessment of Southwest Colorado Communities and San Juan Public Lands. Available on the Internet: <http://ocs.fortlewis.edu/forestplan/productiveHarmonyAnalysis.htm>. Accessed October 28, 2005.
- Runyan, D. 2005. Dean Runyan Associates. County Overnight Visitors Impacts, 1996-2005. Colorado. Available on the Internet: <http://www.deanrunyan.com>. Accessed on February 22, 2007.
- Sonoran Institute. 2003. Sonoran Institute. Population, Employment, Earnings and Personal Income Trends. Montezuma County, Colorado. December 4.
- Southwest 2030 Regional Transportation Plan. 2004. Draft Modified June 8, 2004.

Appendix I ***Canyons of the Ancients National Monument***
Draft Resource Management Plan/Draft Environmental Impact Statement

SWCA Environmental Consultants. 2002. Cultural Affiliation Study for Canyons of the Ancients National Monument, Southwest Colorado. Two Rivers Report. October.

USDA, Forest Service. 2000. San Juan National Forest 2000. Social and Economic Assessment for San Juan National Forest Boggy Draw Allotment Management Planning. U.S. Department of Agriculture, U.S. Forest Service. San Juan National Forest. August 2000.

University of Wyoming (UWYO). 2006. University of Wyoming. Department of Agricultural and Applied Economics. Foulke, T, and R. Coupal, D, Taylor. Implications for the Regional Economy from Changes in Federal Grazing: Park County, Wyoming. Rural Communities and the Changing Rangeland User. Presentation. Available on the Internet: <http://agecon.uwyo.edu/EconDev/>. Accessed on January 31, 2007.